

Having thus described the invention, we hereby claim:

1. A system for integrating a wireless communication network including at least one public base station with a cable communication network including at least one of a distribution hub and a head end connected to the wireless communication network to provide telephone service, a distribution network being defined that includes portions of the wireless communication network and the cable communication network, the system comprising:

a personal base station system operative to manage and process analog communication signals and provide a digital network interface to the distribution network, the personal base station system including an interface unit operative to provide an air interface to the cable communication network;

a hand set unit operative to select one of a first communication channel for communication through the personal base station system via the air interface provided by the interface unit and a second communication channel for communication through the at least one public base station; and,

a data base structure positioned in one of the cable communication network and the wireless communication network and including identification data to facilitate communication through one of the first and second communication channels.

2. The system as set forth in claim 1 wherein the personal base station system includes modules located within the interface unit operative to transmit digital signals over the cable communication network.

3. The system as set forth in claim 1 wherein the personal base station interface unit includes a radio system operative to receive and transmit analog signals over the cable communication network.

4. The system as set forth in claim 3 further comprising modules located in one of the distribution hub and the head end operative to receive the analog signals and transmit corresponding digital signals.

5. The system as set forth in claim 1 wherein the handset has stored therein a residential system identification code and a public system identification code, which are reflected in the data base structure.

6. The system as set forth in claim 5 wherein the handset and data base structure are operative to select the first communication channel and the second communication channel based on the proximity and signal strength between the handset unit and the personal and public base stations.

7. The system as set forth in claim 5 wherein the handset and customer data base structure are operative to select communication through a public base station when a serving personal base station system is not operative.

8. The system as set forth in claim 1 wherein the identification data relates to registration, origination, termination, and handoff processes.

9. A system for integrating a wireless communication network including at least one public base station with a cable communication network including at least one of a distribution hub and a head end connected to the wireless communication network to provide telephone service, a distribution network being defined that includes portions of the wireless communication network and the cable communication network, the system comprising:

a personal base station system operative to manage and process analog communication signals and provide a digital network interface to the distribution network, the system including an interface unit to provide an interface to the cable communication network and a centralized personal base station device including an air interface signal processing module positioned in one of the distribution hub and the head end, the centralized personal base station device being operative to service a plurality of interface units;

a hand set unit operative to select one of a first communication channel for communication through the personal base station system via the air interface provided by the interface unit and a second communication channel for communication through the at least one public base station; and,

a data base structure positioned in the distribution network and including identification data to facilitate communication through one of the first and second communication channels.

10. A system as set forth in claim 9 wherein the interface unit comprises a radio subsystem having an antenna.

11. The system as set forth in claim 9 wherein the interface unit comprises frequency conversion devices connected to an HFC link.

12. The system as set forth in claim 9 wherein the centralized personal base station device further comprises frequency conversion devices connected to the air interface signal processing module.

13. The system as set forth in claim 12 wherein the air interface signal processing module comprises a codec, a modulator/demodulator, an error correction circuit, and an equalizer.

14. The system as set forth in claim 12 wherein the frequency conversion devices connect with a bandwidth manager that connects to an HFC link.

15. The system as set forth in claim 9 wherein the identification data relates to registration, origination, termination, and handoff processes.

16. A system for integrating a wireless communication network including at least one public base station with a cable communication network connected to the wireless communication network to provide telephone service, a distribution network being defined that includes portions of the wireless communication network and the cable communication network, the system comprising:

a personal base station system operative to manage and process analog communication signals and provide a digital network interface to the distribution network, the system including an interface unit to provide an interface to the cable communication network and an air interface signal processing module positioned in the interface unit to convert the analog signals to digital signals to be provided to the cable communication network and the distribution network;

a hand set unit operative to select one of a first communication channel for communication through the personal base station system via the air interface provided by the interface unit and a second communication channel for communication through the at least one public base station; and,

a data base structure in the distribution network and including identification data to facilitate communication through one of the first and second communication channels.

17. The system as set forth in claim 16 wherein the interface unit further comprises a radio subsystem having an antenna.

18. The system as set forth in claim 16 wherein the air interface signal processing module comprises a module including a codec, a modulator/demodulator, an error correct circuit and an equalizer.

19. The system as set forth in claim 16 wherein the identification data relates to registration, origination, termination, and handoff processes.

20. A method for integrating cable and wireless communication networks to provide telephone service, the method comprising:

providing a first communication channel for communication through a personal base station via an air interface, the personal base station connecting to the cable communication network; and,

allowing communication through a second communication channel for communication through a public base station of the wireless communication network,

wherein a selection of the first or second communication channel by a handset is based on proximity of the handset to the personal base station.